

TWO NEW THYSANOPTERA FROM SOUTH INDIA

(With a plate and a text figure)

BY

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The two forms of 'thrips' noted below do not appear to have been recorded till now and are therefore described as new species. The first one is described as a species of the genus *Kleothrips*, Schm. of which there are no previous records from India, and the second as a species of *Leeuwenia* Ky. ; of this latter, however, Bagnall has described three Indian species, two *L. coriaceous* and *L. indicus* from Dehra Dun and Moulmein, and the third *L. eugeniae* from Kodaikanal, the last from material submitted by the writer. The very interesting fact with regard to the species of *Leeuwenia* described so far from different localities is, that most of them have been found on species of the plant *Eugenia*.

IDOLOTHRIPIDÆ

KLEOTHRIPS SUBRAMANII (new species)

Male.—(Macropterous.) (See Fig. 1) Length 6 to 8 mm. General colour dark brown to black; the junctions of the abdominal segments and patches on the basal region of head and on the thorax appear reddish brown; this is particularly so in some specimens. The bulged-out portions of the eyes, of a light greyish brown colour. *Antenna*: the first segment and the basal two-thirds of the second dark brown; the distal third of the second light reddish brown and the sixth, seventh and eighth dark greyish brown; the third, fourth and fifth segments yellowish white covered with greyish brown at the distal region. In the third the greyish patch is found only at the extreme distal end, while in the fourth and fifth this colour covers a third to half of the segment towards the distal region; in the fifth the greyish colour is of a dark hue and resembles the colour of the distal segments.

Fore femora dark brown, of a lighter tinge at its junction with the coxa. Fore tibia and tarsus (except the distal portion which is dark) reddish to yellowish brown, the lateral margins of the tibia dark, and the tarsus and tarsal tooth of a distinctly lighter colour approaching yellow. Intermediate and hind femora dark brown; the tibia also of same colour but with the basal and distal regions yellowish brown. Wings clear with the cilia having light brownish tinge. The Cephalic spines and bristles dark, those on legs and antennæ light to dark reddish brown, and those at the sides of the abdomen and at the end of the tube are of a yellowish brown colour.

Head:—The vertex before the eyes very strongly produced carrying the two antennæ far forwards; the produced portion from before the eyes to the base of the antennæ is 1.25 times as long as the portion behind the eyes and five times as long as the breadth of head across eyes. (See Fig. 2) The head is broadest at the base close to the prothorax and narrowest just in front of the eyes. The vertex is distinctly narrower than the basal region and its sides are more or less parallel but diverge a little at the extreme anterior end where the antennæ are attached; as such the vertex is broadest just behind the bases of the antennæ. On both margins of the head from behind the base of the antennæ right up to the prothorax are numerous spines and bristles, but

those on the vertex are not so conspicuous as those on each genal margin behind the eyes ; on each side of the vertex there are from 8 to 12 small sharp bristles and of these the basal two, one on each side in front of the eyes are the most prominent. Behind the eyes on each side of the head there are five or six well-developed sharp and conspicuous spines some of which arise from short warts. In addition to these there is a very long and slender supra-ocular bristle projecting forwards and outwards above the eyes. Some of these cephalic bristles often break off while handling and are not therefore complete in many specimens.

Eyes prominent and bulging out ; about $1/10$ the length of the whole head. Anterior ocellus situated in the middle of the base of the vertex just in front of the eyes, the other two not clearly seen.

Antennæ (See Fig. 3) length 2·25 mm. $1\frac{1}{3}$ times as long as the whole head. The first and the second segments short stout and more or less cup-shaped with a few sharp bristles at the sides. Third segment very long, considerably longer than every other segment. The third, fourth and fifth each bears a prominent long bristle at the distal end directed outwards ; in the fifth there is a similar one at the same region directed inwards. The sixth has a pair of similar bristles at its middle one on each side. Besides these, there are smaller bristles and hairs in all the segments and groups of sense cones in the distal ones. The terminal segment which is not acutely pointed has a hair at its tip.

Prothorax.—26 times as long as head and including the coxæ it is 1·875 times as wide as long ; in shape more or less hexagonal and provided with a few bristles ; the bristle at postero-lateral margin is sharp and conspicuous ; there are only one or two small ones on the antero-lateral margins. The posterior angle of the coxa also bears a prominent bristle parallel to the one on the postero-lateral margin of the prothorax.

Legs.—(See Fig. 4) Fore femora broad and swollen, broadest just before middle and then narrowing towards tibia ; both margins well supplied with several long and short sharp spines ; those along the outer edge more numerous and some of them are strong and rise from warts—about a dozen such spines at the outer and about 8 or 10 along the inner margin. Fore tibia with the inner margin distinctly curved, broadest just before its junction with tarsus ; at this point the inner edge forms a small conical projection bearing two or three transparent hairs. The tibia bears only a few inconspicuous bristles and that along the outer margin. The tarsus has a prominent long basal tooth rising at right angles from its inner margin ; the tooth is as long as the tarsus itself.

The intermediate and hinder legs are normal in structure, the femora are not swollen or unusually broad, the tibiae not short and curved, nor do the tarsi bear any tooth ; there are, however, bristles conspicuous along the outer margins of the femora and tibiae.

Wings.—Uniformly broad, with the marginal cilia long and numerous. About thirty accessory hairs on hind margin near apex. The wings do not extend beyond the 5th abdominal segment.

Abdomen.—Long and gradually narrowing towards the tube measuring over $2/3$ of the whole body, breadth of 8th segment half the breadth of the abdomen at base just behind last leg. Tube $1\frac{1}{3}$ times as long as eighth segment, breadth at tip $2/3$ of that at its base with half a dozen long bristles at the tip. The abdominal segments have each a group of three yellowish white bristles on each lateral margin ; some of those on the 9th segment are particularly long.

Measurements of holotype male : Total length 7 mm.

Head.—Length 1·442 mm. ; length of produced portion of head in front of eyes ·756 mm. ; length of eyes ·126 mm., length of basal portion of head behind eyes ·560 mm., breadth across eyes ·28 mm., in front of eyes ·154 mm., behind eyes ·266 mm., at base of head ·315 mm. Prothorax length ·364 mm., width including coxa ·770 mm. Abdomen greatest breadth ·630 mm. Tube, length ·525 mm., breadth at base ·105 mm., breadth at apex ·70 mm.

Antenna total length ·1,953 mm.

Antennal segments	I. 140	V. 266
Length in (μ)	II. 105	VI. 140
	III. 840	VII. 70
	IV. 315	VIII. 77

Female macropterous.—Length from 5 to 5.5 mm. General colour similar to male. In structure there are definite variations. The produced vertex in front of the eyes is not so long as in the male, the fore femora are not so broad and swollen, and the fore tarsal tooth is very much smaller and reduced to a small short and curved tubercular projection.

Head.—(See Fig. 5) About three times as long as breadth across eyes; the length of produced portion of head in front of eyes is only .75 of the length of the basal portion behind eyes, and is 1.1 times as long as breadth across eyes. Besides the long and weak supra-ocular bristle the usual cephalic bristles are present, though they are fewer and somewhat weaker than those in male.

Prothorax.—2.34 times as broad as long with the usual bristles. *Legs*.—(See Fig. 6) Fore femora and tibia not so swollen and broad as in male and provided with fewer bristles, fore tibia not curved, fore tarsus with a small tooth-like curved projection at its inner margin very much smaller and weaker than the one in the male. Hinder legs normal with the usual bristles.

Abdomen.—Broader than male at base, 1.2 times as broad as Pterothorax. Tube is 1.8 times as long as eighth segment and .6 times as long as head, bristles of ninth segment very long.

Measurements of allotype ♀ Total length 5.5 mm. *Head*, length .826 mm. length of vertex before eyes .308 mm., of eyes .112 mm. and of basal portion behind eyes .406 mm., breadth across eyes .266 mm., in front of eyes .133 mm., behind eyes .259 mm., and at base of head .322 mm. *Prothorax*, length .315 mm., breadth with coxa .595 mm. *Abdomen* greatest width .735 mm., length of eighth segment .280 mm., Tube length .490 mm. *Antenna* total length, 1.197 mm.

Antennal segments, length in (u)

I.	105	V.	168
II.	77	VI.	105
III.	420	VII.	56
IV.	189	VIII.	77

Described from about ten specimens of each sex. Collected from galleries in the leaves of the palmyra palm (*Borassus sabelliformis*) damaged by the caterpillar *Nephantis serinopa*, a serious caterpillar pest of palms in South India, in the Chingleput District, South India. They were collected on three different occasions by my colleague, T.V. Subramanyam, after whom I have named the interesting species. Mr. Subramanyam says 'Though this "thrips" was collected from *Nephantis* attacked leaves on all the occasions, the economic relation between the two is not yet clear. One specimen was noted to lay 18 eggs on the palmyra leaf. The peculiar habit of brooding over the eggs was observed for a whole day after egg laying. On the second day the eggs get a brownish tinge and on the following day they hatch. The young larva has the body tapering at each end. I could not rear out the nymph any further, as I was not able to find out the actual food of the insect.'

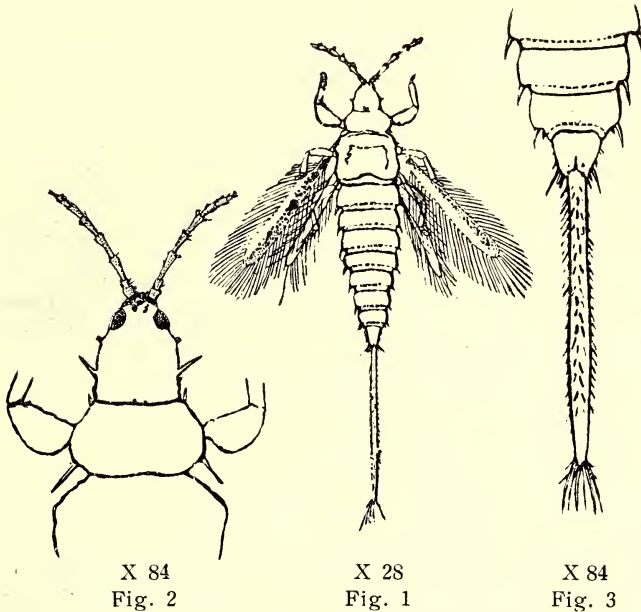
Pre-adult nymph of male has the body bright red and the wing rudiments and limbs transparent shining white, eyes and apex of tube dark.

The insect is without doubt an undescribed form and I have made it out to be a species of *Kleothrips* Sch. Dr. Karny to whom specimens were submitted for specific determination is of opinion that the insect is quite different from all species of *Kleothrips* known to him, that it closely resembles his genus *Acrothrips* and may even be a new genus allied to these two genera, because of the extraordinary length of the vertex of the head and the abnormal length of the third antennal segment. I have, however, described it as a *Kleothrips* for the present, and as far as I could make out is distinct from the few known species described till now by Schmutz, Karny, and Hood. This appears to be the first record of a species of *Kleothrips* from India, the few previous records being from Ceylon, Malaysia, Africa and Australia.

HYSTRICOTHRIPIDÆ.

LEEUEWENIA KARNYI Ramakrishna (*new species*)

Length including tube 3 to 4 mm. General colour dark to light chocolate brown. Eyes dark, ocelli brown, pigment reddish brown. First segment of antenna concolourous with head, second of a light brown and third to eighth clear pale yellow. The median dorsal region of head, all the femora and the front tibiæ of a more or less lighter brown than the rest of the body. The genal and prothoracic spines, the lateral abdominal spines and the bristles at apex of tube transparent light yellowish brown. Wings infumated along middle with a light brown patch. Cilia dark brown.



LEEUEWENIA KARNYI Ramakrishna

Fig. 1—Adult Insect X 28.

Fig. 2—Anterior region X 84

Fig. 3—Hind region X 84.

Head.—1.25 times as long as wide, broadest at the base, the sides gradually narrowing towards eyes; eyes large and prominent, oval, $\frac{1}{3}$ as long as the whole head, and, the breadth across the eyes $\frac{2}{3}$ of that at base; ocelli clear, the hind ones placed at the anterior edge of the vertex just below the base of the antennæ and on a line with the anterior edge of the eyes, the front ocellus overhanging at edge of the vertex. Cheeks behind the eyes finely crenulated with one conspicuous spine on each side midway between the eye and the base of head; there are in addition a few very minute isolated setæ arising out of the crenulated cheeks, especially just behind the eyes. Antennæ, nearly 1.75 times as long as head, first and second joints short and stout, the first equal in length to the last, third longer than the fourth, fourth equal in length to seventh and eighth together; the fourth, fifth and sixth are broader distally. Mouth cone broadly conical extending beyond the middle of prosternum.

Thorax.—Prothorax—about $\frac{3}{4}$ as long and 1.5 times as broad as head; short anteriorly directed spine at the antero-lateral angle and a stout long one directed backwards sideways at each posterior lateral angle, the latter rises

from a tubercle and is slightly longer than the one in each cheek. These spines get broken and are not visible in many prepared specimens.

Legs.—Fore femora flattened and with crenulated edges, fore tarsus unaimed, hind legs normal. *Wings* moderately broad and reaching to 7th segment of abdomen; no accessory hairs on post margin.

The body surface on the head, thorax and the fore femora clearly reticulated showing numerous small cellular spaces.

Abdomen.—Stout built, the surface at the base reticulate; at base 1.5 times as broad as the prothorax and gradually narrowing to tube. The abdominal segments are distinctly transversely produced and each has a strong conspicuous spine at the postero-lateral angle on each side; these spines are directed backwards and are tuberculate at base. The spines of the 2nd and 3rd segments small, whereas those of the 6th, 7th and 8th are very prominent; on the 8th and 9th segments there are one or two extra bristles near the above. Tube a little more than four times as long as head and slightly shorter than all the other abdominal segments together; breadth almost uniform throughout; fringed with setæ but they are weaker and fewer than in *gladiatrix*, Ky., a little more than a fifth of the tube at the apical end without any setæ.

Measurements of holotype.	Total length including tube	3.8 mm.
	„ „ of head.	.336 mm.
	„ „ eyes.	.105 mm.
	„ „ Prothorax.	.210 mm.
	„ „ tube.	1.4 mm.
	Breadth across eyes.	.230 mm.
	„ at base of head.	.294 mm.
	„ of prothorax.	.420 mm.
	„ of base of abdomen.	.630 mm.
Breadth of tube at base	.091 mm.	Breadth of tube at apex .063 mm.
		at middle. .077 mm.

Antenna total length. .581 mm.

Length of segments in (*u*)

I.	42	V.	91
II.	56	VI.	84
III.	112	VII.	56
IV.	98	VIII.	42

Described from ten specimens collected by me on leaves of *Eugenia jambolana*, Bangalore, January 1924.

Although in some features this species approaches Karny's *gladiatrix* from Java and Bagnall's Burmese form *indicus*, it is distinctly different. It is also quite different from *L. eugenice* recently described by Bagnall from South Indian specimens I submitted to him a few years ago. From *gladiatrix* it differs by the weaker setæ on the tube, in *eugenice* the tube is weaker than in this form and very sparsely clothed with short setæ. Karny's *aculeatrix* and *caelatrix* have the tube wider in the middle and covered with numerous conspicuous setæ. His *seriatrix* also has the tube covered with longer setæ. In *indicus* the tube is longer than the other abdominal segments and the wing retaining spines very poorly developed. The distinctive features of this species are the conspicuous single spine on each cheek and the transversely drawn out abdominal segments with the strong tuberculated spine at the posterior-lateral angle of each segment. Specimens were examined by Dr. Karny and he concurs with me in the opinion that it is a new species. I take the privilege of naming this species as a mark of my regard to this well-known authority on Thysanoptera.